

Washington Park Arboretum

BULLETIN



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— Washington Park Arboretum —

The Arboretum is a 230-acre dynamic collection of trees, displaying internationally renowned collections of oaks, conifers, camellias, Japanese maples, hollies and a profusion of woody plants from the Pacific Northwest and around the world. Aesthetic enjoyment gracefully co-exists with science in this spectacular urban green space on the shores of Lake Washington. Visitors come to learn, explore, relax or reflect in Seattle's largest public garden.

The Washington Park Arboretum is managed cooperatively by the University of Washington and Seattle Parks and Recreation; the Arboretum Foundation is its major support organization.

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Open 10 AM—4 PM daily;
holidays, NOON—4 PM.

Closed Thanksgiving and the Friday after,
Christmas and New Year's Day.

The Arboretum is accessible by Metro Transit buses #11, #43 and #48. For more information: www.transit.metrokc.gov

— Arboretum Foundation —

The Arboretum Foundation is a nonprofit organization established in 1935 to ensure stewardship for the Washington Park Arboretum and to provide horticultural leadership for the region. The Foundation provides funding, volunteer services, membership programs and public information in support of the Arboretum, its plant collections and programs. Volunteers operate the gift shop, conduct major fund-raising events, and further their gardening knowledge through study groups and hands-on work in the greenhouse or on the grounds.

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The City of Seattle owns most of the Arboretum's land and buildings. Seattle Parks and Recreation is responsible for park functions throughout the Arboretum and manages and operates the Japanese Garden.

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CONTENTS

2 Fall Matures the Arboretum and Its Garden Plans—*Deborah Andrews*

3 Habitat in the Washington Park Arboretum—*Rory Denovan & Shawna Zuege*

8 On Becoming a Gardener—*Steve Lorton*

9 The Christmas Bird Count in the Arboretum—*Herbert Curl, Jr. & Shiva Parameswaran*

12 Pacific Connections—*David Mabberley*

17 Washington Park Arboretum Irrigation Mainlines Project—*Michael Shiosaki*

20 Travels in Chile—*Richie Steffen*

24 Arboretum Signature Bed

25 The Flora on the Arboretum and University of Washington Campus in 1850—*Ray Larson*

30 IN A GARDEN LIBRARY: Pacific Northwest Authors—Another Bumper Crop of New Titles—*Brian R. Thompson, Bulletin Book Review Editor*



ABOVE: David Mabberley, director of the University of Washington Botanic Gardens, admires the newly carved entry stone, immediately after its placement at the Botanic Gardens' Union Bay campus entrance in August. Photo by Barbara Selemon.

ON THE COVER: This unusual form of the fern, *Blechnum chilense*, which has red new growth, is native to Alerce Andino National Park in Chile's Lakes Region. The large-leaved plant in the lower left corner of the photo is *Gunnera chilensis*. (To read more about the plants of Chile and the Arboretum's plans to use them in the Pacific Connections Garden, see pages 12-23.) Photo by Richie Steffen.

Fall Matures the Arboretum and Its Garden Plans

Even as the warm autumn light shifts to give us glowing glimpses of red-orange sumac berries and yellow-gold maple leaves, we recognize the promise of next year's seeds in this final maturing of the season. Signs of nature's race to peak ripening before winter arrives abound everywhere in Washington Park Arboretum—both literally and figuratively.

I hope you will find an opportunity to appreciate the changing colors and falling leaves of these crisp days. And as you do, also envision the wonderful changes coming next year to continue fulfilling the vision embraced within Washington Park Arboretum Anew. Phase I of the Pacific Connections Garden is concluding, and plans for implementing Phase II are underway. You will see signs of the project this fall, as the new irrigation mainlines are laid. Imagine putting in an irrigation system

for a 230-acre site! We now have the final design drawings for the revitalization of 12 acres at the south end of the park. Construction is set to begin in 2007 on plans for a centralized grassy meadow, a botanical interpretive shelter, five Pacific Rim, ecogeographic gardens and their smaller preview gardens. New paths for easier access, and interpretive signs along the way, will also make enjoying these new gardens a pleasure for all.

The five ecogeographic gardens will highlight plants from Chile, China, Cascadia (Washington, Oregon and Northern California), Australia and New Zealand. (For more detail about the Pacific Connections Garden plan, see David Mabberley's article beginning on page 20.) The Pacific Connections Campaign, created to provide funding for this 21st century vision, rolls on as well. We have raised \$2.23 million of the \$3 million needed to break ground for the first garden, Chile, next summer.

In this and future issues, you will learn more about the plant collections planned for each of the five Pacific Connections ecogeographic gardens. The Pacific Connections Garden will truly establish Washington Park Arboretum as a leader among arboreta and botanic gardens, both in the United States and abroad! ~



Deborah Andrews, Executive Director,
Arboretum Foundation



The faded wheat-colored blossoms and lacquered autumn color of the foliage of *Oxydendrum arboreum* make this small tree a destination on fall visits to the Arboretum. Commonly known as sourwood, this native of the American Southeast may be admired at Arboretum grid coordinates 12-7E, 15-7E, 29-1W and 31-3E.



Habitat in the Washington Park Arboretum

RORY DENOVAN AND SHAWNA ZUEGE

*A*t the edge of Rhododendron Glen Pond, a young Pacific Treefrog (*Hyla regilla*) awaits his next meal. As he sits amongst the small-flowered bulrushes (*Scirpus microcarpus*), he feeds on tiny gnats, flies and mosquitoes, whizzing past this ideal perch. As a tadpole, having survived the predation of water bugs, diving beetles, salamander larvae and adults, and other frog tadpoles—such as the invasive Bullfrog (*Rana catesbeiana*)—this young native frog continues to fight for its life every minute of every day.

Besides frequent pond visitors, such as Raccoons (*Procyon lotor*) and Great Blue Herons (*Ardea herodias*), Bullfrogs are the Pacific Treefrog's greatest and most populous enemy. As an adaptation for its environment, the young frog is camouflaged with green and brown tones, depending on temperature and moisture levels in the air. Even so, this frog is always on the lookout for danger.

A Pacific Tree Frog (*Hyla regilla*), somewhat camouflaged by his greenish brown coloring, perches atop the cap of an *Amanita muscaria* mushroom.

Just as he is ready to search a new area of the pond for food, a juicy mosquito flies past and hovers over the green turf that is just out of the tiny frog's reach. He decides to take a leap into this dangerous territory for a quick, delicious meal when, SUDDENLY, the ground below begins to rumble and shake. With little warning, a huge lawn mower comes muscling out of nowhere and confronts the tiny, frightened frog...

RYAN GARRISON

Now here's a question: How do we maintain a world-class arboretum and ensure access to its unique collection of plants while providing quality habitat for native plants and animals? This is not an easy task, but that's exactly what the University of Washington Botanic Gardens (UWBG) and Seattle Parks and Recreation (Parks) are attempting to do as part of their shared mission to manage Washington Park Arboretum in an ecologically sustainable manner.

The Washington Park Arboretum Master Plan calls for improvements to "the ecological health and natural regeneration of the Arboretum's areas of native habitat" and enhancements for "wildlife diversity through the design, implementation, and phasing of plant collection exhibits and native forest habitats."

If you have been to the Arboretum recently, you have probably noticed some new, and perhaps unexpected, features. Snags (dead standing trees), unmowed areas, restoration sites along Duck Bay and in the Pacific Northwest Lowland Riparian exhibit, and new installations of native herbaceous plants—all reflect efforts to manage the Arboretum in an ecologically sustainable way while providing better experiences for our visitors.

Habitat Essentials

Habitat is the combination of food, water, shelter and space that animals and plants need to survive. A great characteristic of the Arboretum is that it has bits of all of the essential ingredients of good plant and animal habitat. Visitors will currently find in the Arboretum animals as large as bald eagles and



as small as Pacific Chorus Frogs, but there are habitat improvements we can make to improve their lives.

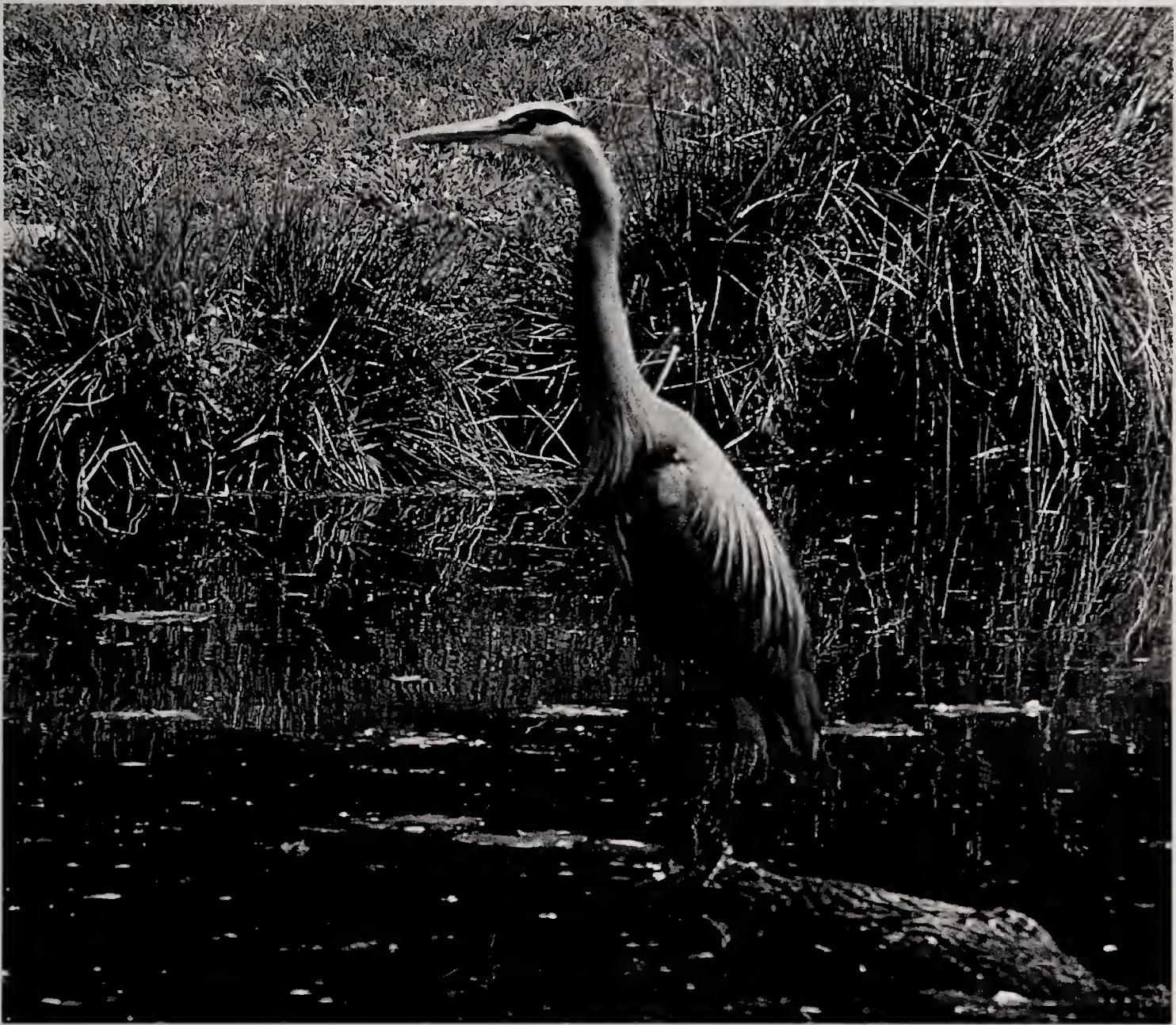
Since water is often the most limiting factor in providing habitat in an urban area, we are particularly lucky that the Arboretum includes a number of water features: small wetlands, Arboretum Creek, four ponds, and the large marshes around Foster and Marsh islands.

Both the Arboretum's collection (plants for taxonomic, horticultural, and ecogeographic education and study) and native plants provide diverse food sources for birds, mammals and insects. Pollinators of all sorts benefit from this diversity as well. Small fish and amphibians supply food for Great Blue Herons (*Ardea herodias*) and Belted Kingfishers (*Ceryle alcyon*), while our resident Coyotes (*Canis latrans*) and owls seem to be living on squirrels, mice and moles.

The Arboretum's 230 acres are proximate to the Union Bay Natural Area and adjacent to Lake Washington. While this site may not be big enough for macro-fauna like elk or bears, it's just about the right size for some hard-to-find creatures such as the Pileated Woodpecker (*Dryocopus pileatus*).

Lying Low in the Long Grass

One limiting factor for wildlife in the Arboretum is cover (or shelter). While there are plenty of out-of-the-way places with dense and layered vegetation, this cover is fragmented. In an effort to provide more contiguous cover for wildlife, Parks crews are leaving many areas unmowed for longer periods of time. Arboretum Creek is a natural place to create more cover and provide a



corridor for wildlife. Leaving the area along the creek unmowed has had the added benefits of slowing storm water during heavy rains and preventing the culvert at the Wilcox Bridge from getting clogged and flooded. Many visitors appreciate the naturalistic aesthetic these unmowed areas provide.

In addition to leaving these areas unmowed, the UWBG and Seattle Parks are working together to establish native plants within the creek's riparian corridor. If you haven't had an opportunity yet, take a look at recent University of Washington Restoration Network projects at the mouth of Arboretum Creek.

Snags: The Good, the Dead and the Ugly

You may already have noticed a number of dead standing trees in the Arboretum. While dead trees may seem paradoxical in an arboretum, both these snags and rotting logs have important habitat value. Snags offer food for insectivores, such as Northern Flickers (*Colaptes auratus*), Pileated Woodpeckers, Brown Creepers (*Certhia americana*), Nuthatches (*Sitta canadensis*) and Sapsuckers (*Sphyrapicus ruber*); and they offer shelter for cavity-nesting birds, frogs, butterflies and bats. Rotting logs provide food and shelter for a whole range of creatures, including beetles and

To keep predators—such as the Barred Owl (*Strix varia*, opposite) and Great Blue Heron (*Ardea herodias*)—happy in the Arboretum, healthy habitat for their prey must be maintained.

These birds thrive on the mice, voles, fish and frogs that live in the Arboretum.



Maintaining healthy habitats for animals and birds living in the Arboretum includes careful maintenance of mown meadow paths (below) and the grassy verges of Arboretum water sources, such as Arboretum Creek (left)—seen here with the blue blossom of Washington's native camas or Indian hyacinth (*Camassia esculenta*).



deer mice; and salamanders nest in between loose bark and rotting logs. The moist microclimate on the ground immediately surrounding rotting logs is comfortable habitat for frogs, toads, skinks, snakes, voles and mice.

Arboretum staff carefully consider several factors when deciding to leave a snag. First, the snag must not present a hazard to visitors or structures. Second, it should be in an appropriate area, perhaps tucked back amongst the native matrix or along a shoreline. Often Arboretum staff will reduce a snag from its original height so that it cannot fall on adjacent paths or plant collections.

The Future: More "Happy-tat"

And we're not done yet! The Washington Park Arboretum Master Plan calls for a variety of improvements for wildlife and visitors alike, including daylighting the buried sections of Arboretum Creek. Students and other volunteers will continue to play an important role in future invasive plant removal and habitat restoration projects. Over time, such projects have proven to be great opportunities for volunteers to learn, share and meet others in the community.

As we lose animal habitat throughout the region, it is increasingly important to care for

the areas we still have. For instance: What might be the impact of State Route 520 expansion on the quality of both wildlife habitat and visitor experience in the Arboretum? From the Olmsteds, to the folks who worked to redirect the proposed R.H. Thomson Expressway, we owe a lot to people who came before us and preserved the Arboretum as a place for recreation, conservation and learning. It is important that this resource is passed on to future generations—in even better condition than it was when we received it.

...afraid for his life, the threatened frog desperately leaps back into the long, unmowed grass for protection. On this day, the Pacific Treefrog is relieved that Arboretum staff are committed to the protection of animal and plant habitat, and that they have left unmowed areas and preserved native plants along the pond's edge. The hungry herons are glad of that too! ~

RORY DENOVAN, senior gardener for Seattle Parks and Recreation, has worked in the Arboretum for three years. **SHAWNA ZUEGE** is the UWBG education coordinator; she may be reached at shlea@u.washington.edu.

Habitat Conservation References

To learn more about restoration and conservation efforts at Washington Park Arboretum, please visit www.wparboretum.org and the University of Washington Restoration Ecology Network at www.depts.washington.edu/uwren/.

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Elizabeth C. Miller Library: www.millerlibrary.org

Pacific Northwest Native Wildlife Gardening:
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Seattle Audubon: www.seattleaudubon.org

Washington Department of Fish & Wildlife Backyard Wildlife Sanctuary Program:
<http://wdfw.wa.gov/wlm/backyard/>

Washington Native Plant Society: www.wnps.org

WindStar Wildlife Institute: <http://www.windstar.org/>

On Becoming a Gardener

OCCASIONAL REFLECTIONS: # 2

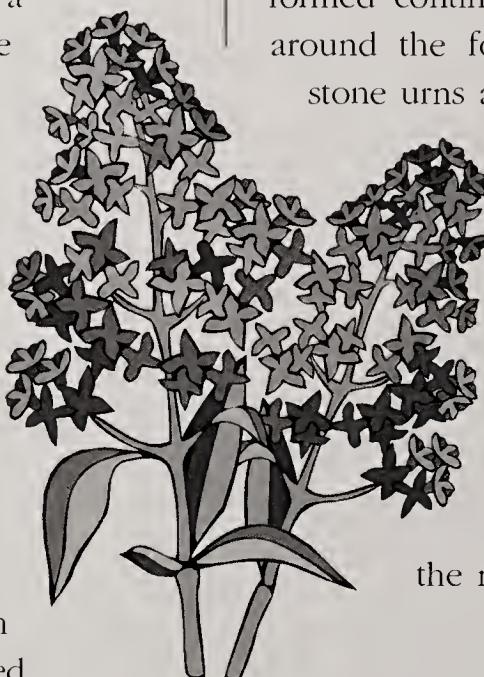
First Ohio Gardens

BY STEVE LORTON

Back in western Ohio in the spring of 1952, my mother was again demonstrating how shrewd she was. She'd seen the wanderlust in my eyes and knew that doling out unexpected privileges gave her control. "Now that you're five, Daddy and I have decided that you can walk around the block by yourself. You can't cross any street and you can't go off the block." Mother was smart. I was off in an instant for the first of many block walks. A great adventure had begun.

Down our street at the corner stood the big white frame house of Mr. and Mrs. Inchinelli. It had a turret with a witch's cap—fascinating enough—but in the middle of the huge lawn was a circular island bed filled with blooming peonies. The big pink petals and light fragrance beckoned me to its edge. Mrs. Inchinelli called out from a second story window, "Pick one and take it home to your Mom. Tell her I've been busy, I'll be over next week!" I did. Mrs. Inchinelli was.

Next house down belonged to Mrs. Belt, a widow with more kids than anyone could keep track of. Mrs. Belt lived in a large bungalow built with river rock halfway up the first story and porch posts to match. The twin lilacs at each side of the porch steps were enormous and untended.



Naturalized daffodils, tulips, hyacinths, and a zillion other remnants of Mother's Days gone by popped from the high grass around the foundation. Mrs. Belt hung bits of string in the lilacs each spring to help the birds bind their nests, and once, a decade later, when I'd developed a reputation for doing yard work, I offered to prune Mrs. Belt's lilacs for free. "Thanks, honey, but the truth is, I like them the way they are. I get in this house and I feel like a bird in a bush!"

The house east of Mrs. Belt belonged to Bud and Dot Wise. Like the Inchinellis', their house was big and painted sparkling white. An annual coat of sky-blue paint was applied to all porch furniture and Dot's antique wicker plant stand, which was topped by a massive Boston fern. Immaculately clipped yew formed continuous rectangles of dark green around the foundation of the house. Cast stone urns at the foot of the stairs erupted in red geraniums and white petunias. Bud and Dot drove identical new cars (except his was black and hers was white). They smoked cigarettes, had a cocktail out on the porch every evening in summer and were charter members of the newly established country club.

continues on page 19

The Christmas Bird Count in the Arboretum

BY HERBERT CURL, JR. AND SHIVA PARAMESWARAN

DENNIS PAULSON



FRANK GANDER



SEATTLE AUDUBON SOCIETY



The sun has just risen on a rather chilly, gray New Year's Day morning. A small group of warmly dressed people stands in a grove of trees, looking through binoculars, while one person peers through a spotting scope on a tripod. All talk excitedly while another individual busily writes in a notebook. What's going on, and what in the world could bring these folks out on a day when most of us are still fast asleep?

It's the start of another Christmas Bird Count (CBC), first organized by the National Audubon Society in 1900 to provide an alternative to the traditional "sport" of seeing who could shoot and kill the largest number of birds and mammals in one day. Clearly, while hunting still occurs—but in a much less blood-thirsty way—we've come a long way. Today, throughout the Western Hemisphere, there are nearly 2000 "count circles" in which participants attempt to tally all the birds they can see and hear in 24 hours within a fifteen-mile diameter circle. Some counts start before dawn or continue after dark in order to find owls.

At day's end, Seattle Audubon counters repair to a potluck dinner, during which the compiler receives written and verbal reports from the count leaders, and applause greets word of a rare species. The compiler sends the totals to National Audubon, and reports are published annually. In addition, Seattle

Volunteers who participate in the Seattle Audubon Society's Christmas Bird Count at the Arboretum often spot Anna's Hummingbirds (top); the Varied Thrush (bottom) is less commonly seen, and the Hermit Thrush (middle) is discovered only rarely.

Audubon's results are published in a spring issue of the newsletter, Earthcare.

Why Join the Birdcount?

The CBC has social, educational and public relations value, in part because it raises public awareness of the winter bird life in our area. However, this more than 100-year record of bird distribution and abundance also has significant scientific value. At no other time are so

many observers out in the field over a three-week period. In the beginning, little thought was given to the potential scientific use of the database. As a result, the protocols for individual count circles differ from one another; observers vary in numbers and ability, and weather has a significant effect on observations obtained on a single day. Despite these obstacles, it is possible to use modern statistical methods to tease out trends in abundance. And since trend and cycle analysis require a database as much as five years long, there is some delayed gratification before analysts begin to understand what these data mean. However, the fun of just being outside—identifying and counting birds with friends in all kinds of weather—brings out thousands of birders every year, and close to a hundred in the Seattle count circle. Plans for this coming Christmas count will be announced in Earthcare and local newspapers in late fall. New participants are always eagerly welcomed!

The Washington Park Arboretum CBC is part of a larger area that extends from east of Interstate 5 to Madison Park. It would be no exaggeration to state that the Arboretum is the crown jewel in this larger area. The Arboretum CBC team is usually led by a master birder and includes eight to 10 eager volunteers, some of them birders of long standing. We begin at daybreak in Volunteer Park and proceed to the Arboretum about 10 a.m., where the count team spends the next four to five hours. The usual practice is to count all areas south of the Graham Visitors Center during the morning session. After a quick lunch break, the group scours Duck Bay and parts of Foster Island. Then the count moves to Madison Park.

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Identifying Both Common and Rarer Species

The morning session, which covers the core area of the Arboretum, is usually rich in songbirds. Generally, in winter, songbirds tend

to forage and feed in mixed flocks. This strategy has the advantage of gathering more pairs of eyes to look for food as well as predators.

A basic knowledge of various birdcalls is a plus in identifying many of these species. If one makes a "pishing" noise to attract birds, it is either the Red-breasted Nuthatch or Song Sparrow that responds first. These species might then be followed by a wintering Fox Sparrow with its bold "chip," a Dark-eyed Junco with its less emphatic chip, or a Spotted Towhee making its nasal whine. The firm double chip of the Winter Wren or the buzzing of the Bewick's Wren can also be heard.

Both Golden-crowned and Ruby-crowned Kinglets are present, and Bushtits feed communally in copious numbers. If one is lucky, a Brown Creeper or Downy Woodpecker may also be spotted. The Black-capped and Chestnut-backed Chickadees are also there, along with the American Robin.

While it is easy to see the common birds, finding the less common or rare ones is always a thrill. The less common Varied Thrush and uncommon Hermit Thrush can be discovered with some effort. Anna's Hummingbirds, which are fairly common—having expanded their range and adapted to our mild winters—were once found only in the more southern climes of California. The winter flowers of Oregon grape and witch hazel are good sources of much-needed nectar. The dashing Townsend's Warbler, which nests in high elevation conifer forests, also winters in the Arboretum in small numbers.

Paying close attention to the various calls of songbirds can reap its own rewards. The distress calls of birds like the Black-capped Chickadee can alert one to the presence of predators such as the Sharp-shinned Hawk or Coopers's Hawk. While finding the medium-sized falcon (Merlin) is a challenge, Red-tailed Hawks and Bald Eagles are regularly recorded.

The weather might be cold and wet during these festive days, but counting birds

in the Arboretum is certainly a colorful and heartwarming event. It is also a wonderful way to send out the old year and ring in the new one. ~

HERB CURL is the Seattle Audubon Society's science advisor. **SHIVA PARAMESWARAN** is a master birder and Seattle Audubon board member. Curl may be reached at hcurl55@comcast.net.

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PACIFIC CO

BY DAVID MABBERLEY

There are only a few times in the history of a long-lived cultural institution that those stewarding it have the privilege of engaging in major improvements, rather than “business-as-usual.”

In Seattle today, the most striking example of such an institution is perhaps the Seattle Art Museum, but not far behind—though much less known about so far—is the Washington Park Arboretum. After many years of planning

The mature Central European woodland, one of the early ecogeographic exhibits installed at the Botanischer Garten in Berlin, Germany, inspired the first ecogeographic plantings in North America and is the inspiration for the focal forests to be created in the Arboretum’s new Pacific Connections Garden.



PACIFIC CONNECTIONS

and consulting with all stakeholders, of publicity and fund-raising, the Master Plan for the renovation of the Arboretum is poised for implementation.

Identified early on as suitable for the first phase of renovation—because of being a prominent site with a distinct air of neglect—

is the 12-acre wedge between south Arboretum Drive and Lake Washington Boulevard. In Portico's Master Plan, this is the site of a series of ecogeographic gardens, the most intricate and potentially didactic in the whole Master Plan—certainly the most intensive in terms of design, construction and

This forest of *Araucaria araucana*, or monkey puzzle trees, grows in Chile's Conguillio National Park.

The hope is that, with time, the Arboretum will have an *Araucaria* forest growing in the new Pacific Connections Garden.

long-term maintenance—all on a challenging topography.

The original idea of a meadow surrounded by gardens of plants from various parts of the world was refined into one with a distinctive theme. Namely, gardens have been selected to represent the vegetation, horticulture and other plant-use in particular countries bordering the Pacific, countries from which many of our hardy plants have been brought: China, Australia, New Zealand and Chile, as well as our own “Cascadia.” The central meadow, which accommodates an interpretive shelter, thus becomes an “ocean” with the countries bordering it. Immediately around it will be plantings of the most striking hardy plants from each place, while the juxtaposition of the different gardens will allow comparison not only of the botany but also the contemporary plant-use of the different territories, chiming with the University of Washington Botanic Gardens’ (UWBG) tag-line, “Plants for Life,” and embracing the University’s two major concerns: “engagement” and “sustainability.”

Very appropriately then, the Arboretum Foundation’s campaign title for this first phase of Master Plan implementation is “Pacific Connections,” and the University has taken up this name for the whole garden: “The Pacific Connections Garden.” Each sub-garden is to have a focal forest—an attempt to replicate, as far as possible, actual forest types in the germane country, allowing an immersive experience, such that a visitor can get a real feel for the vegetation of the region, rather than seeing a scientifically meaningless jumble of plants grown together. Although an original approach in the region, the concept is not new. It was pioneered in Germany in the 19th century.

Botanischer Garten, Berlin

With the arrival of Adolf Engler as Director of the new botanic garden at Berlin-Dahlem, Germany, in the late 1880s, came his revolu-

tionary vision for a garden largely based on ecogeographic principles, according to his and Oscar Drude’s *“Vegetation der Erde.”* From this idea came, later, the inspiration for the first ecogeographic plantings in North America. I visited the Berlin gardens last year to discuss their planning and maintenance with curators and other managers.

Under Engler and Ignatz Urban, large areas of the Berlin garden (formerly agricultural land) were given over to establishing not merely collections of plants from a particular region but also to recreating plant associations and even ecosystems. This was most successful in the mature Central European woodland exhibits, which are now very fine indeed, but the Atlantic American and Japanese woodland sections are now almost self-regulating too.

It must be pointed out that the Berlin climate is very much harsher than Seattle’s and that several of the exhibits, including those of Australia and New Zealand, comprised summer displays of plants in pots overwintered under glass. Attempts were also made to put together at least geographic, if not ecogeographic, collections of tropical and other tender collections in greenhouses. The collections were centered on a great amphitheatre of rock gardens with appropriate stone from Europe through Asia to China, Japan and North America. Adjacent to them were other formations including forest, steppe, bogs and fens. Engler himself wrote up in published detail the exhibits for the Alps, North America and the Cape.

Despite neglect in the immediate post-World War II years, the gardens survived, though invasion by native species was (and is) a major problem. In the 1970s, a more scientific direction was taken with respect to the garden: the ecogeographic exhibits were singled out for conservation and enhancement, with, from 1976, the serial replacement of plants of unknown provenance with those of known provenance. For the ecogeographic collections, there are three curators who deal

with acquisitions, verification and policy, and who—with technical support—maintain the garden's herbarium. The Garden Herbarium, established in the 1950s, is the repository for these documented collections, though there are cultivated materials going back to the early 18th century when the Botanic Garden was at another site. Since 1974, over 48,000 accessions have been made to the herbarium. All new acquisitions are named before planting out, and herbarium specimens (some 200 a year of up to 400 seed lots obtained) are deposited.

Today there are some 10,000 species grown outside, and the ecogeographic exhibits occupy 13 of the 42 hectares (ha) that comprise the whole garden; each hectare is a bit less than two and a half acres. These exhibits are managed by a supervisor and are divided into three areas for maintenance purposes (Europe, Asia, America + Japan), each with a lead gardener and one to two support gardeners plus volunteers, i.e. 10 staff members plus volunteers. Grass-cutting and path maintenance are contracted out. The garden has two nurseries, three full-time equivalent (FTE) gardeners for propagation of herbaceous plants and two FTE for woody ones. The larger part of the garden is a taxonomically arranged arboretum maintained by three FTE gardeners. The staffing for both the ecogeographic and arboretum collections is considered woefully inadequate by acceptable international standards: Due to budget cuts, the staff for the whole garden is half what it was in 1980.

The gardens are now well over 100 years old and are mature, the Central European woodland, for example, requiring very little gardening, though water has to be added in summer. Spontaneous native plants include the parasitic *Lathraea squamaria*. Elsewhere, "meadows" over 100 years have acquired, similarly, without deliberate introduction, some 70 species of rare and endangered native plants—those included on Germany's "Red Data List." The dynamic nature of these exhibits

requires constant attention to labeling, as labels have to "follow" the plants.

The problems faced today include a) invasives from native stands that have seeded into the exotic, though exotic weeds are less of an issue; and b) the growth of some trees so that shading of others is a major concern. From the start, there was a policy that such fast-growing trees would have to be removed well before maturity (Engler suggested 10-20 years.), but this was unpopular with the public and, in consequence, the grandeur of the concept is, in parts, obscured by mature trees. Replacements are now being planted on the northern sides of gardens to minimize their shading effects.

Lessons for the Pacific Connections Garden

Although the gardening is more intense in the rock gardens in Berlin, that required for the forest and other formations is now a great deal less than when these gardens were maturing. Aside from a small number of volunteers, the admittedly inadequate staff for such mature gardens, with the currently more intensive rock gardens, is 10 FTE with three curators (plus technical support) and two propagators (i.e. 15 personnel plus technical support for 13 ha). These individuals all need office space, etc., besides the physical plant for their work (nurseries, tool and machinery depots, etc.). Added to this is the contracted staff for grass-cutting, path-maintenance, walling, etc.

The mature arboretum has three FTE outside and two FTE in the nursery (plus curatorial support) for about 28 ha. By comparison (and indeed by comparison with any arboretum or botanic garden in America), the Washington Park Arboretum (WPA) part of UWBG—with five outdoor staff for over 230 acres, one part-time propagator at Union Bay Gardens and an acting curator and research assistant in the Otis Douglas Hyde Herbarium at Merrill Hall—is already disgracefully understaffed.



RICHIE STEFFEN

At WPA we will be looking at more intense work on the “wooded” sections of the new development, at least for the foreseeable future, and we also have to maintain the heritage Holmdahl rockery (see Steve Lorton’s article in the Winter 2006 issue of the Bulletin) garden at its southern tip. We also have a much greater threat from exotic, invasive weeds. Weighing all these factors, our level of staffing should approximate that of the Botanischer Garten in Berlin, although it must be remembered that in Berlin the growing season is very much shorter and less effusive, and that the current staffing there is now

“inadequate;” so we may be rather optimistic in this equalization.

With only a proposed curator and existing registrar to handle the whole of WPA acquisition, planting decisions and documentation, we must soon increase our staffing such that as each garden in Pacific Connections is completed, there will be provision for adequate horticultural care without jeopardizing the curation of our other internationally significant collections, including maples, hollies, oaks and the conifers in the pinetum.

At the same time, it must be remembered that, unlike Berlin, where the gardens were

Chilean natives, *Blechnum chilense* and *Fuchsia magellanica*, photographed in Alerce Andino National Park, will be used as understory plants in the Arboretum’s focal forest exhibit of *Nothofagus dombeyi*, the “king of the Chilean woodland.”

WASHINGTON PARK ARBORETUM

IRRIGATION MAINLINES PROJECT

BY MICHAEL SHIOSAKI

*I*t can be argued that water is the most important component of any garden. Without it, seeds don't become seedlings, sprouts don't take root and many trees won't thrive. A source of fresh, clean water from a comprehensive irrigation system is critical to the success of plant collections as diverse as those at Washington Park Arboretum.

So, while putting in new irrigation at the Arboretum doesn't sound very exciting, it's a fundamental piece of infrastructure for future growth.

Seattle Parks and Recreation, in conjunction with the University of Washington and the Arboretum Foundation will install a new irrigation mainline system for the entire Arboretum. The Irrigation Mainlines project will include two new north/south-oriented mainlines, constructed along the east and west sides of the Arboretum. An existing mainline along Azalea Way will be retained. Associated valves will serve individual plant collections and landscaped areas.

The new system will serve as the backbone for all future irrigation in the Arboretum—and, as they are implemented, all new projects or renovations will tie into the new mainlines. The new system, however, will remain separate from the existing one, which dates back to the 1930s and can no longer be augmented to serve the Arboretum's future needs. The old system will, nevertheless, continue to serve the gardens it has always served.

The city and the University are undertaking the installation prior to the start of the Pacific Connections project, which will create five different collection areas that feature the plants of "Cascadia," Chile, China, New Zealand and Australia. The irrigation system improvements must be completed prior to the completion of significant additions to the plant collections.

Herrera Environmental developed the irrigation master plan based on the plant collections and landscaping outlined in the Arboretum Master Plan. In fact, the Irrigation Mainlines project is one of the Master Plan's highest priorities. Currently, the construction document phase of the design is being completed. After reviews by City and University of Washington staff, Seattle Parks and Recreation will publicly advertise the project for construction bids. Work will take place during the fall and winter, with anticipated completion in spring 2007.

The project is funded by the voter-approved Pro Parks Levy that includes \$2.26 million for improvements in the Arboretum. Seattle Parks and Recreation conducted the public involvement process on this project and will manage its construction.

MICHAEL SHIOSAKI is the planning and development manager for the Pro Parks Levy Program, Seattle Parks and Recreation. He may be reached at 206-615-0823.

established on open land, the installation of these gardens means inserting them between mature trees to be retained—both collection trees and the “native matrix” of Douglas fir and big-leaf (Oregon) maple. As stewards of such state (indeed international) assets, we must ensure that these trees take precedence over any new developments. They have provided a forest network for the whole development, their dense growth forming the initial framework for the focal forests.

Nonetheless, whole collections must be moved as part of the project: The holly collection will be moved to Iain Robertson’s exciting new Holly Garden on the west side of Lake Washington Boulevard (see the article by Randall Hitchin in the Fall 2005 Bulletin); the lilacs displaced by the hollies are being established in the more suitable, sunny surrounds of Azalea Way. Similarly, among others, the witch-hazel family collection will eventually be moved to make way for part of the Australia Garden.

On top of this, the Pacific Connections Garden project will necessitate the procurement of thousands of plants of known provenance needed for the larger parts of these new gardens. Many will be acquired through other botanic gardens, but we will have to assemble, propagate and maintain these plants elsewhere in UWBG (at Union Bay Gardens around Merrill Hall) until installation of the germane gardens takes place. In an effort to increase the numbers of such plants, UWBG is organizing a series of expeditions, the first trip in 2007 being led by Dan Hinkley, who will be joined by Richie Steffen of the Elizabeth C. Miller Botanical Garden. Each of these expeditions will require close

“Gardens have been selected to represent the vegetation, horticulture and other plant-use in particular countries bordering the Pacific...: China, Australia, New Zealand and Chile, as well as our own ‘Cascadia.’”

collaboration with universities and other organizations in the countries to be visited, so we will form links with people in China, Chile, Australia and New Zealand. For the first expedition, to China, the University of Washington staff are being generously sponsored by one of the Arboretum Foundation’s units. This expedition will also concentrate on Asian holly species so as to ensure that the new Holly Garden will be the most species-rich collection of hollies in this country.

The next trip will be to Chile, and successive ones, to Australia and New Zealand.

Later articles in this series will describe in detail each of the new gardens. Together with this introduction to the project, they will demonstrate, I believe, that we are indeed embarking on one of the most remarkable phases in the history of Washington Park Arboretum—an endeavor which, as you can see, has ramifications not only across all UWBG, in terms of increased requirements for maintenance, propagation and herbarium collections, but also, through the expeditions, to the University’s links with institutions in countries all around the temperate Pacific.

I hope you will agree that this is one of the most exciting horticultural projects of our time and that you will support the University, in its efforts to provide the staffing needed, as well as the Arboretum Foundation, in its magnanimous pledge to underwrite not only the Pacific Connections Garden but, over some 20 years, the restoration of the entire Arboretum. ~

DAVID MABBERLEY is the director of the University of Washington Botanic Gardens.

On Becoming a Gardener

Continued from page 8

They were glamorous.

At the end of that block, old Mrs. Pfister always invited me in for a glass of milk and a piece of cake. She cut one of her fabled hybrid tea roses for me to take home, and I looked out the window of her breakfast room to the giant black locust. Dad had always snorted, "It's a trash tree, but it does make good fence posts. They don't rot." Mother said, "I imagine that tree is like the ones of the African savanna." After she told me what the African savanna was, I could never look at Mrs. Pfister's locust tree without seeing elephants and giraffes, and was glad that she hadn't cut it down.

Usually, an hour into my adventure, Mother called my name: "Stee-vee!" she sang out with an ability to project her voice, second only to Ethel Merman. I'd holler, "Coming!" and head home.

I learned some important things on those walks: I learned that I loved to look at plants and the gardens they grew in, that I liked the people that lived in the gardens, that each garden was different and each garden's inhabitants were different as well. I had this sense, then, that I'd always be in a garden someplace. And that has been so. ~

Former Northwest Bureau Chief of Sunset Magazine, **STEVE LORTON** continues to write and lecture and passionately support the Arboretum. He may be reached at Stevelorton@aol.com. This memoir was first published 10 years ago, in the Fall 1996 Bulletin.



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TRAVELS IN C



CHILE

RICHIE STEFFEN



JOY SPURR



BY RICHIE STEFFEN

In the winter of 2005, I had the opportunity, as the representative of the Elisabeth C. Miller Botanical Garden, to join a small group of horticulturalists seeking to explore the flora of southern Chile. The other professional plantsmen on the journey were Dan Hinkley, well-known plant-hunter; Randall Hitchin, registrar and collections manager for the University of Washington Botanic Gardens; and Dave Demers, a plant explorer from Quebec, Canada. We were in Chile for two weeks, traveling in Patagonia (the southern tip) and south-central Chile (between the cities of Temuco and Puerto Montt).

The focus of the tour was to see and better understand the flora of southern Chile, especially plants growing in the Lakes District. Southern Chile is a botanically rich region with

LEFT: This view of a monkey puzzle tree (*Araucaria araucana*) forest and the Volcano Llaima was taken by the author in Chile's Conguillio National Park.

ABOVE: The flowers of Chile's *Embothrium coccineum* are an April treat in the Arboretum; in southern Chile, they are blooming right now. Imagine a "drift" of *Embothrium coccineum* trees in the new Pacific Connections Garden!

temperatures and rainfall similar to our own climate, and its mountainous areas are rich with plants that will thrive in the Pacific Northwest. In fact, the plants of this unique habitat will be included as Washington Park Arboretum recreates a native forest in Chile's portion of the new Pacific Connections Garden.

Through the following, brief travel log, join me for just one day of our exciting trip. Perhaps this day's journey will provide a feel for both this fantastic landscape and an idea of what may develop in the Arboretum's future Chile Garden.

— 24 February 2005 —

Today—an early morning. Yesterday afternoon we arrived at the city of Puerto Montt—a coastal center of fishing and tourism—and we are all ready for a day of plant exploration. Puerto Montt is located in southern Chile, about two-thirds down the length of this long, narrow country. The roads from our hotel leading out of town are a maze of twists and turns, but we are grateful to be driving through them before the multitude of markets and shops open for business; even now, we can see that the streets will soon be clogged with traffic and people.

We clear the central city and the driving becomes easier. We head east—more or less—toward the spine of Chile, the Andes Mountains, and we can clearly see the ridge of peaks in the distance. Our goal is to spend the day trekking in Alerce Andino. This enormous park was created in 1982 to protect the last of remaining stands of ancient *Fitzroya cupressoides*, locally known as *alerce*.

As we close in on the mountains, the hills become lush with vegetation. Broadleaf evergreen trees dominate the landscape, which is broken by only a few homes and pastures for grazing livestock. As we near the forest, the paved road becomes gravel and then dirt, and the vegetation is rich. Forest edges are lined with an array of delightful ferns—only a

sampling of what is to come. The foothills rising on either side of the road are covered with a remarkable fern, *Lophosoria quadripinnata*, a trunkless tree fern with fronds reaching 10 to 12 feet in height; its leaves become five to six feet long and four to five feet wide. Plant associations suggest that this incredible plant should be hardy in the maritime Northwest. I hope it will one day be available.

Evergreen Thickets

We park the car in a small dirt parking lot near a trailhead and start our day's hike. We are no more than a few feet into the hike when we are confronted with a small grove of huge *Luma apiculata*, a beautiful tree myrtle—a little tender, but well worth growing in the Seattle area. Trunks rise 50 or 60 feet in the air and are as smooth as our native madrone (*Arbutus menziesii*). The bark is a bright cinnamon brown with patches of eggshell white patterned along its length. We turn to proceed further and encounter several *Crinodendron hookerianum*, their branches decorated with grape-sized white fruit hanging in small clusters. I wish we had seen this small tree (usually a medium-sized shrub in Seattle) in flower. It produces flushes of rich red, teardrop-shaped blooms throughout the growing season.

The forest is thick around us and the trees are not too tall, but very dense. Much of the flora is a composition of evergreen thickets created by several myrtle species, *Drimys winteri* and *Aristotelia chilensis*. A few *Embothryium coccineum* rise above the fray, their brilliant red-orange flowers replaced with hard green pods dangling from the stems. In its native habitat, *Fuchsia magellanica* is a rather large shrub about 20 feet tall. The red and purple fuchsia flowers are found abundantly lining the pathway as we travel on. A spectacular fern, *Blechnum chilense* or Chilean hard fern, has produced lovely colonies up to six feet tall, with leathery, deep green, arching fronds peeking through the woodland.



The trunkless tree fern, *Lophosoria quadripinnata*, pictured here in Alerce Andino National Park, has fronds that can grow 10 to 12 feet tall; it may prove to be a hardy and attractive species for North American gardens.

Also pictured is *Tristerix corymbosus*, a parasitic plant that will *not* be grown with *Lophosoria* in the Pacific Connections Garden.

Nearby, its dwarf cousin, *Blechnum pennarumaria*, slowly creeps along, barely reaching six inches in height. Both of these ferns weave in and out of the woodland setting.

Gnarled Trunks & Spiny Thickets

The trail starts to climb, and we begin a gentle ascent. As we reach more mature forests, the true king of the Chilean woodland appears, *Nothofagus dombeyi*. Old gnarled trunks hold twisted, muscular limbs high above the forest floor. The leaves are small and a bright, glossy deep green. This evergreen southern beech is the climax tree in this region and dominates the mountainside. We are lucky to see a number of specimens that are several hundred years old. In their old age, there are few trees that can rival them in beauty. The exception to this rule is soon apparent. A survey of the slopes shows dots of white scattered across the mountainsides. As we get closer, the identity of these giant flowering trees is

revealed as *Eucryphia cordifolia*. The pristine white flowers sparkle in the sun and create a canopy 80 to 100 feet in the air! The trail opens to a small waterfall and clearing, revealing an open pool. On the pool's far side is a grove of *Buddleja globosa*, a yellow-flowered, non-weedy butterfly bush, hanging over the banks into the sun.

Near the top of our climb we reach the breathtaking *Araucaria* forests. Commonly known as monkey puzzle tree, *Araucaria araucana* forms a bizarre woodland. Looking like a row of green umbrellas, these trees cast bright, open shade, allowing the growth of a thick understory. There are several *Berberis* species growing in spiny thickets, punctuated by clumps of *Chusquea* bamboo. One of the oddest plants we encounter is *Desfontainia spinosa*, a densely branched shrub growing four to seven feet tall. Its leaves are spiny and are similar in shape to holly leaves; at first glance, it is easy to mistake it for an *Ilex*. The similarity ends when it flowers. Vermillion red tubes elongate about two inches; then the tips fade to yellow and become slender trumpets. *Desfontainia* is notable for its relatively long blooming time, starting in mid-summer and continuing for about six weeks. For puzzling your friends, this plant is definitely one to add to the garden!

Upon reaching an alpine lake surrounded by steep, almost vertical mountainsides, plunging to the edges of the water and covered in *Araucaria*, our day hike is complete. After taking a break—to absorb the scenery and enjoy the surroundings—we soon decide to head back. On the return trip, I am preoccupied with what we have seen and the treasures we look forward to finding the next day. It is hard to absorb so much beauty. ~

RICHIE STEFFEN is coordinator of horticulture for the Elisabeth C. Miller Botanical Garden and a member of the Bulletin's editorial board.



Arboretum Signature Bed



The Arboretum's current Signature Bed was designed by John van den Meerendonk of the Hardy Fern Foundation in 2004.

Very successful and much appreciated by Arboretum visitors, this fern display will remain in place for at least one more year.

To learn more about the design of the Signature Bed, see van den Meerendonk's article in the Summer 2004 Bulletin.

A list of the plants included in the bed is available in the Graham Visitors Center.



The Flora of the Arboretum and University of Washington Campus in 1850

BY RAY LARSON

The landscape that now comprises the University of Washington (UW) campus and the University of Washington Botanic Gardens (UWBG) once contained some of the most diverse native flora

in the Puget Sound lowlands. While today's UW-managed lands have a much greater array of plant species than existed historically—thanks largely to the exotic species collected in Washington Park Arboretum—this part of Seattle once featured a range of plant habitats that supported an unusually large number of native species within a surprisingly short distance. The land included prairie-like areas, swamp and marshlands, mature old growth forest, moist ravines and riparian forests. While some of the native species once found here persist, hundreds more used to be present before European-American settlement began in 1851. Of these, dozens have become extinct outside of isolated habitats in the mountains or islands of Puget Sound. A few are believed no longer to exist at all.

Tracking Native Species

To determine which plants and environments were present in Seattle just prior to European-American settlement, a wide variety



of resources was required. Of course, absent a time machine, reconstructing a wholly accurate picture of the 1850 landscape is impossible. Still, realizing that Seattle was founded by little

more than a dozen settlers and took decades to grow much outside of what is now the downtown core, quite a bit of detail has emerged. Urbanization, as we now know it, took even longer to occur. Much of what is now the political boundary of Seattle was farm and forestland until the 1930s, so most of the landscape was relatively undisturbed for nearly 80 years.

Some sources were more helpful than others, and some were completely unexpected. Myriad historical, ecological and ethnological sources were valuable. These included Government Land Office (GLO) survey records, herbarium specimens, early settler accounts, ecological and botanical research studies in the historical period, soil maps and other geological information, the few relatively undisturbed plant communities, ethnological and population information about the Native American inhabitants of the area, and even a few photos.

The earliest written record describing the vegetation of what is now the Arboretum and surrounding area dates from the GLO survey

ABOVE: This 1883 University of Washington zoology class photograph features many early members of the Young Naturalists Society. Second from the left is Charles V. Piper, collector of many early herbarium specimens at the University; fourth from the left is Edmund Meany, also an early collector for the herbarium and, later, a beloved University professor. (Used with permission of the University of Washington Libraries, Special Collections, Peiser 189.) **BACKGROUND:** Photograph of the original 1855 Government Land Office survey notes for Township 25 North, Range 4 East, portions of which include what are now the University of Washington and Botanic Gardens managed lands.

of 1855. However, the place names given by Native American inhabitants to many locations in the area actually provide the first descriptions of the types of plants and landscape features that were present. Herbarium records for the area are surprisingly abundant, thanks in large part to the relocation of the UW's campus from downtown Seattle in 1895. At that time, the landscape was largely untouched, aside from the logging of only the largest trees in the area. Even four decades after the first non-native settlers arrived, the land was covered with many first-growth trees and a nearly intact native flora.

Early Herbarium Specimens

The Young Naturalists Society at the UW, founded before the move to the Portage Bay site, amassed the core of the early collections of the Washington Territorial University Herbarium. Thanks to the Society's efforts, the historical plant communities around the UW are among the best documented in the entire region.

Some unusual plants were collected from the shores of Portage Bay in the late 1800s and early 1900s. Here were found the only locally documented collections of *Erythronium oregonum*, the dog-toothed violet. Here also were the only confirmed collections in the city of *Fragaria chiloensis*, the sand strawberry. The collections from this area indicate that the shore contained more open and possibly drier areas than other parts of Lake Union, which was usually described by early settlers as having brushy shores with forests nearly to the edge of the lake in most places. The area around Portage Bay, from the UW west to the Latona neighborhood, was described in several accounts as having several open, grassy areas. Furthermore, the native Lushootseed-speaking peoples called this area *baqʷab* or "prairie."

In contrast, the bulk of what is now the central campus was forestland. The surveyors of 1855 recorded many Douglas firs (*Pseudotsuga menziesii*) and western red cedars (*Thuja plicata*) greater than 40 inches

in diameter and noted that the overstory was dominated by these species as well as *Acer macrophyllum* (big-leaf or Oregon maple) and *Alnus rubra* (red alder). *Tsuga heterophylla* (western hemlock), *Abies grandis* (grand fir), *Cornus nuttallii* (Pacific dogwood) and *Taxus brevifolia* (Pacific yew) were also common tree species here, with many herbarium specimens collected in later years. Pacific yew seems to have been very abundant. As it is a fire intolerant species, this suggests that it may have been some time since fire visited this part of Seattle, and that much of the campus contained old growth trees.

The understory consisted of a great variety of woody and herbaceous plants, including obvious candidates such as *Polystichum munitum* (western sword fern), *Gaultheria shallon* (salal) and *Berberis nervosa* (low Oregon grape). However, some species recorded then are now rare or extinct within present-day city limits, including *Actaea rubra* (baneberry), *Aruncus dioicus* (goat's beard), *Asarum caudatum* (wild ginger), *Maianthemum dilatatum* (false lily-of-the-valley), *Linnaea borealis* var. *longiflora* (twinflower), *Paxistima myrsinifolia* (mountain boxwood) and *Petasites frigidus* var. *palmatus* (palmate coltsfoot). Other species, once common and still found in less-urbanized parts of town, included *Berberis aquifolium* (tall Oregon grape), *Holodiscus discolor* (oceanspray), *Lathyrus polyphyllus* (leafy peavine), *Lonicera ciliosa* (orange honeysuckle), *Luzula parviflora* (small-flowered wood rush), *Physocarpus capitatus* (Pacific ninebark), *Rhamnus purshiana* (cascara), *Ribes lacustre* (black gooseberry), *Ribes sanguineum* (red-flowering currant), *Rosa gymnocarpa* (baldhip rose), *Rosa nutkana* (Nootka rose), *Rubus parviflorus* (thimbleberry), *Rubus spectabilis* (salmonberry), *Trillium ovatum* (western trillium) and *Viola sempervirens* (trailing yellow violet).

Of course, many other species were present too—both on campus and in the woods nearby. However, diversity diminished over time as the campus was developed and the



ABOVE: Herbarium specimens from the University of Washington Botanic Gardens Otis Douglas Hyde Herbarium show plants collected at Portage Bay and on the University campus in 1908. **RIGHT:** This towering grand fir (*Abies grandis*), protected by a bend in Arboretum Creek, may be found at grid location 22-4W.



underbrush cleared. Up until the 1930s the UW held annual “campus clearing days,” when faculty, staff and students were required to spend the day cutting trees and clearing brush and other vegetation in order to both tidy things up and open the campus for future development.

From Ravenna Park to Union Bay

Fortunately, a variety of records of the original vegetation was kept. One such resource was a pamphlet produced in 1903 by the owner of nearby Ravenna Park, W.W. Beck, who charged admission to the park—located only a few blocks north of campus—and promoted it as “Seattle’s only forest unshorn by axe and fire of original beauty and noblest and grandest characteristics.” He enlisted UW Professors Edmund Meany—who, while a UW student, was an early member of the Young Naturalists Society—and Trevor Kincade to take a vegetation survey of the park. They documented trees, shrubs and herbaceous species, including *Amelanchier alnifolia* (western serviceberry), *Calypso bulbosa* (western fairy-slipper orchid) and several other orchid species, *Mimulus guttatus* (yellow monkey-flower), *Oplopanax horridus* (devil’s

club), *Picea sitchensis* (Sitka spruce), *Philadelphus lewisii* (western mock orange), *Rhododendron macrophyllum* (Pacific rhododendron) and *Lilium columbianum* (tiger lily). Interestingly, Kincade noted that *Adiantum pedatum* var. *aleuticum* (maiden-hair fern) was already “now somewhat rare owing to the deprivations of fern hunters.”

Eastward, down the hill at the northern part of Union Bay, campus lands were quite marshy. This part of Union Bay historically reached just north of what is now Northeast 45th Street. The area where University Village shopping center now sprawls

was described in 1855 as a “willow swamp.” Through the marshlands at the south end of the swamp ran two large creeks—one, a nearly three-foot-wide stream running from the campus, and the other, the 10-foot-wide Ravenna Creek.

The native peoples called this place *shu?wit* or “Perforation for a Canoe,” and described it as a place into which a canoe could travel through channels that intersected the marsh.

Here several species of willow were present, along with typical wetland plants such as *Spiraea douglasii* (hardhack), *Malus fusca* (Pacific crab apple), *Scirpus acutus* (hard-stemmed bulrush) and many sedges. On drier land adjacent to the shore, were *Fraxinus latifolia* (Oregon ash), *Populus balsamifera* ssp. *trichocarpa* (black cottonwood) and *Thuja plicata* (western red cedar). Interestingly, a notable component of the wet shorelines and marshes along Union Bay today is *Betula papyrifera* (paper birch). However, it was not recorded as present in Seattle until 1929, making it highly unlikely to have been native in 1850.

The land that is now home to the UWBG Union Bay Gardens was once a small peninsula jutting out between the bay formed by the outflow of Ravenna Creek, to the west, and the small cove at the outlet of Yesler

Creek (now culverted), to the east. The land was described in the GLO survey of 1855 as being covered by a large number of western red cedars, the dominant tree, followed by Douglas fir, western hemlock, ash, big-leaf (Oregon) maple, alder and willow. The presence of high numbers of cedars, as well as other species tolerant of wet soils, such as ash and willow, indicates that much of this peninsula, historically, was a fairly wet site.

The southwestern side of Union Bay featured drier lands. Photographs taken in 1895 clearly show towering evergreens growing almost to the shore at the present-day site of Husky Stadium. Continuing southeast on the south side of the bay, there were none of the marshy islands that currently dominate the site. This is hard to imagine now, until we remember that the lake was nine feet higher before 1916, when the Lake Washington Ship Canal was built. In 1855, this land was described as being low in height, and the trees along the shore were chiefly Douglas fir, western red cedar, red alder and black cottonwood.

Natives in Washington Park Arboretum

Continuing east along the shore, we now reach the site of Washington Park Arboretum. Native inhabitants considered Arboretum Creek prominent enough to name. Their word for it, *statał*, meant "fathom" or "fathom measure," though it is unclear to present-day scholars exactly what this meant to them. It measured nearly three feet across at its mouth and once drained an area reaching deep within Madison Valley. Most of the creek south of the present-day Japanese Garden and the city playfields at the south end of Washington Park was long ago culverted.

Foster Island was a distinct island within Union Bay—and noted as "Foster's Island" as far back as the 1855 survey, at least. At the time, it was an oval-shaped island, separated from the mainland by nearly 200 yards. The surveyors measured the channel separating the island from the shore as being only three feet

deep. A level island with mostly Douglas fir, western red cedar, Oregon ash and cottonwood present, it was described as having "low banks," with the west shore being "wet and swampy" and the "east shore covered with lake grass."

Surveyors also noted what they described as a sand bar north of Foster Island. The channel separating the sand bar and the island was only 15 inches deep, though nearly 200 yards lay between the two. These islands and the lake bed in between would all become one connected piece of dry land in 1916.

In the Arboretum itself there was a mix of wet and dry soils, with the uplands supporting first-growth coniferous forest. Some of the trees were quite large, with at least one Douglas fir measuring 60 inches in diameter. Western red cedars, western hemlocks and grand firs were all major components of the uplands, with cedars and grand firs more common in the lower areas. One large grand fir in the middle of the Arboretum—protected by a meander in Arboretum Creek—has apparently survived to the present day. While most of Washington Park had been logged at least twice before its development as an arboretum, this grand fir escaped the axe. There are other grand firs older than the Arboretum in Washington Park, but none is as large or as stately as this one.

The vegetation in the lowlands of the Arboretum, and especially along Arboretum Creek, consisted of species that could tolerate moist soils. In fact, most of the valley contained within the Arboretum was described as a "vine maple bottom" in 1855. This valley—like other creek valleys in Seattle—was dominated by vine maples (*Acer circinatum*). In fact, this type of "moist ravine" environment seems to be the only place in Seattle where vine maples grew historically. While they are certainly tolerant of drier conditions, the moist soils and cooler air of these valleys were the only places where vine maple seedlings could survive our arid summers. When the Olmsted Brothers were mapping the route of Lake Washington Boulevard through Washington Park in 1903,

they noted large patches of vine maple throughout the lower elevations of the park. These areas largely paralleled the route of the creek. At the Olmsted firm's request, many of these patches were saved, and some of the vine maples still present survive from that time. A few of the vine maples in the Arboretum are probably among the oldest in Seattle.

Of course, there were also many other species present in the Arboretum. The Woodland Garden contains perhaps the only large patch of *Paxistima myrsinifolia* (mountain boxwood) still present in Seattle. *Achlys triphylla* (vanilla leaf) and *Trientalis latifolia* (starflower) are both comparatively rare in Seattle but still persist in several places in the Arboretum. The second- and third-growth woods have abundant examples of big-leaf (Oregon) maple, red alder, *Corylus cornuta* (beaked hazelnut) and *Oemleria cerasiformis* (oso-berry), though they are more prevalent now than they would have been historically. Other species, such as

Vaccinium ovatum, *Cornus nuttallii*, *Maianthemum canadense* (syn. *Smilacina racemosa* or false Solomon's seal), *Ribes sanguineum* and *Taxus brevifolia*, were much more abundant historically than they are now. And it is probably true that the majority of species that once grew natively in the Arboretum are altogether absent today. In truth, in 2006 we can only see a glimpse of the many species that inhabited the area in 1850. ~

RAY LARSON is head gardener at Hill-Crest, the residence of the University of Washington president. Readers interested in more about this article's topic may peruse Larson's master's thesis, "The Flora of Seattle in 1850: Major Species and Landscapes Prior to Urban Development," available at both the Elisabeth C. Miller Library at the University of Washington Botanic Gardens and at the Natural Sciences Library on the central UW campus. He may be reached at halcyon@u.washington.edu.



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Pacific Northwest Authors

ANOTHER BUMPER CROP OF NEW TITLES

BY BRIAN R. THOMPSON

Writing the fall column for "In A Garden Library" is pure pleasure—my opportunity to read and review new books by regional authors. The list just gets bigger and better, and this year is no exception!

Field Guides

I gravitate to all new field guides, but especially outstanding is "Wildflowers of the Pacific Northwest" by Mark Turner and Phyllis Gustafson. Perfect for travels throughout the region as—unlike many guides—coverage includes eastern Oregon and Washington, southern British Columbia and even the most northern parts of California.

Very visual, over 1200 flowers are photographed, described and handily arranged, first by color, then by number of petals and shape. To keep the book at field weight, most trees, grasses and non-flowering plants are excluded, but this allows for greater quantities of showy annuals and perennials; for example, 30 *Castilleja* (paintbrush) and 28 *Penstemon* species are included. With so many choices, the range maps by county are particularly helpful.

More specialized is "The Wildflowers of Mount Adams, Washington" by Susan McDougall. A sweet little book, it introduces the showier and more common flowers growing above the mountain's 4,000-foot level. It is the first publication in a long-overdue exploration of the flora of the region's second tallest mountain.

For in-depth identification and descriptions of plants west of the Cascades, keep in mind

Eugene Kozloff's "Plants of Western Oregon, Washington & British Columbia," reviewed in the Spring 2006 issue of the Bulletin.

Gardening Guides

I'm not a big fan of formulaic framework, but "Month-By-Month Gardening in Washington & Oregon" transcends potential problems of format. Mary Robson and Christina Pfeiffer creatively walk the reader through monthly task lists, neatly divided by plant groups. Both are experienced and educated gardeners, and they package their knowledge effectively for novice and expert alike.

Don't forget the introduction or appendices, but—if you are like me—you will jump to what-I-should-be-doing-right-now for perennials, shrubs, native plants and even houseplants. Lawn? Included are not only watering and mowing tips, but also the why and how of replacing turf with something better. Best of all, each section starts with a planning guide, brimming with tips and questions you should be asking yourself.

Taking a different approach is the "Northwest Top 10 Garden Guide," edited by Fiona Gilsenan and the editors of Sunset Books. Plant group sections—ground covers, roses, trees, etc.—form the book's structure, but each section is written by a different author (and the list reads like a who's who of Northwest luminaries). All list favorite choices, often stretched to a dozen or more by adding favorite cultivars and selections. The result is a gold mine of plants you must have and, even better, the know-how to grow them.

For example, Arthur Lee Jacobson is forced to identify his favorite trees (doesn't he like them all?), and Val Easton helped me sort through the wisteria choices to cover my garage. Less familiar voices, such as Valerie Murray from the Abkhazi Garden in Victoria and Patricia Holloway from the University of Alaska, provide sparkle, but editing is tight, and chapters seem to be written in one voice.

New Voices

New writers from around the region address local audiences but resonate much farther. Carolyn Herriot operates an "organic heritage plant nursery" in Victoria, British Columbia. Her first book, "A Year On The Garden Path," is an experiential and personal scrapbook of essays, to-do lists, tips, recipes, poetry and black and white snapshots, all arranged in a week-by-week sequence through the seasons. Her emphasis is edible plants, but flowers, shrubs and trees all find a place.

Rachel Foster has written weekly essays for the Eugene Weekly since 1993. "All About Gardens" is a compilation of her favorites, and, right away, I found several of specific interest to decisions I am making about my Seattle garden. Although personal in tone, Foster's writing reveals an effective interviewer who skillfully weaves the thoughts of local professionals and experts into her work. She also draws on her experiences as a garden consultant, using her client's gardening practices as examples.

Clematis should be in every garden. If you doubt this premise, Linda Beutler of Portland, Oregon, will change your mind. In "Gardening with Clematis," she succeeds in writing a general gardening book wrapped around a single genus and, even better, makes it readable, cover-to-cover. She's not afraid to express opinions, and my love of the book is only enhanced by her declaring, "*Clematis 'Venusia Violacea'*: This is my favorite clematis of all. There, I've said it." Thank you, Linda; it's my favorite, too!

New Editions

New editions of trusted references are always worth seeking out. Cass Turnbull's "Guide to Pruning" is only two years old, but the new 2006 edition adds several chapters, including specific practices and several shrubs not included before, as well as help with the renovation and pruning of hedges.

Steve Whysall listed his favorites in the 1998 title: "100 Best Plants for the Coastal



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Garden." Gardening editor for the Vancouver Sun, he's back with a much-updated list of the one hundred best, reflecting another eight years of new introductions and his own growth as a gardener.

Sunset's "Western Landscaping" covers everything west of the Rockies, including Alaska and Hawaii, but the principles, design insights and many of the examples are applicable in the Pacific Northwest. Revised extensively, both this and the first edition (1997) are worth shelf space.

Arthur Lee Jacobson has fulfilled his long-time goal to complete a second edition of "Trees of Seattle," and it's a beauty! It's also much bigger: The 1990 first edition included 740 different types of trees within the city limits; this time the total tops 1,300. As before, the user-friendly and effective descriptions include easy-to-find examples throughout the city, with many, of course, in the Arboretum.

Visiting Gardens

Touring is one of the best ways to inspire new visions, and several new books will help. Alice Joyce's travel guide, "Gardenwalks in the Pacific Northwest," provides visitor information to all major public gardens west of the Cascades from Vancouver, British Columbia to Medford, Oregon (including nurseries with significant displays). Each listing includes a generous description of the garden's highlights, while sidebars add information on notable plant societies, scenic routes, and floral events such as the Skagit Valley Tulip Festival. Separate chapters list selected lodgings that cater to gardeners, along with shops and other resources to nurture green thumbs.

Carolyn Starner picked many of the same gardens for "Emerald Journey," but her book is a photo essay, successfully capturing the spirit and, with the succinct introductory text, much of the essence of each garden. She includes two eastern Washington gardens, Ohme and Manito Park, but otherwise the book follows the same coastal route as Joyce,

but from south to north. Garden travelers need both of these titles!

For the history of one of our region's most famous gardens, check out "A Family Legacy," the story of the Butchart Gardens near Victoria. Published by Butchart Gardens, there are the expected self-promotional photos of lavish bedding; more interesting are the historical images and the too brief text by David Clarke about the family and history of the gardens.

Assorted Treasures

"The Jade Garden" is the work of three curators at the University of British Columbia Botanical Garden in Vancouver—Peter Wharton, Brent Hine and Douglas Justice—and is a must for every gardener with plant lust. Here is a long list of "new" plants being introduced from Asia—primarily China—that have been tested at the Garden and demonstrate merit. Thumbing through the plates will entice, while reading the cultivation and propagation notes will ensure the success of your new acquisitions—once you find a source for purchasing them.

Mary Kate Woodward turned her Vancouver Island garden into a butterfly sanctuary and shares her expertise in "Butterflies and Butterfly Gardening in the Pacific Northwest." A worthy field guide to native butterfly species, photographs include larva, pupa and adult forms, while the text lists favorite host plants and successful strategies for attracting these lovely creatures.

"Tree: A Life Story" unfolds the 500-year life of the icon of the Pacific Northwest forest, the Douglas fir. No one—or tree—lives alone, and woven into the story are the other plants, animals, and elements of nature that share the forest and history of human observation. This book's themes of life, growth and death are universal, but the specifics come from Northwest coastal forests. Co-author David Suzuki lives in Vancouver, while artist Robert Bateman, who is equally adept at drawing grizzlies or mycorrhizal fungi, is from Salt Spring Island, British Columbia.

Bonnie Hall turned her training as a botanical illustrator to an unusual medium—screen printing—to record many of the Northwest's rare and choice wildflowers and ferns (and a few butterflies). Tragically, it was left to her husband, Jim Hall, a biologist at Oregon State University, to produce "Ever Blooming—The Art of Bonnie Hall" after her death in 2004. The Halls' collective work has the beauty to make it suitable for the coffee table, but Bonnie's text and her careful attention to the detail of her subjects makes this much more than a pretty picture book.

Other worthy titles focus more on the fauna or natural history of our region but discuss plants in an accompanying role; these are included in the bibliography. Visit the Arboretum Shop, your favorite bookstore or the Elisabeth C. Miller Library for all these selections—and start reading! ☙

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